

DESCRIPTIONS OF NEW SPECIES OF ARGYROTAENIA
IN THE SOUTHWESTERN UNITED STATES

(Lepidoptera: Tortricidae)

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The genus *Argyrotaenia* Stephens as characterized by Freeman (1958) comprises 20 North American species. During the course of current studies on the taxonomy and biology of the Tortricinae in California, a number of apparently undescribed species have accumulated. The following descriptions are offered at the present time in order to make the names available for use by Dr. N. S. Obraztsov in his treatment of the Archipsini, the first section of the generic revision and catalogue of the North American Tortricidae.

I wish to acknowledge with sincere thanks the hospitality and assistance of the following on my recent visit to the eastern institutions: Dr. J. F. Gates Clarke, U.S. National Museum; Dr. N. S. Obraztsov and Dr. Fred H. Rindge, American Museum of Natural History, and Dr. T. N. Freeman, Entomology Research Institute, Ottawa, Canada. In addition to the above I would like to thank H. H. Keifer, California State Department of Agriculture, Sacramento; Lloyd M. Martin, Los Angeles County Museum, and Charles F. Harbison, San Diego Museum of Natural History for the use of specimens in their care.

***Argyrotaenia cupressae* Powell, new species**

A reddish species having the forewings flushed with rosaceous and crossed with pale transverse bands and markings.

Female.—Length of forewing 9.4 mm. *Head*: palp reddish-brown exteriorly at base fading to pale orange apically, paler interiorly; second segment abruptly expanded in outer half by dorsal rounded scale tuft; head tufts ochreous-orange, paler on vertex; a small dark reddish-brown tuft below each antennal scape adjoining eye; scales behind eye ochreous basally, red-brown apically; antenna reddish-brown, darker dorsally and basally, scape ochreous with a red-brown blotch anteriorly. *Thorax*: collar red-brown; ochreous above with scattered pale red-brown scales tending to form median and terminal bands on tegula (holotype thorax mostly rubbed above); shining whitish below, broad flat tuft below palpi ochreous; prothoracic leg red-brown exteriorly, tibia and tarsus mottled with ochreous, whitish interiorly; mesothoracic legs lacking; metathoracic leg shining whitish. *Forewing*: broad, less than 2.5 times longer than wide, costa abruptly rounded basally (giving the wing a broad appearance), slightly flattened beyond middle, apex rounded, termen only slightly angled back. Ground color light red-brown

with scattered ochreous scales and with areas of shining rosaceous overscaling; markings pale, whitish with some pale rosaceous scaling as follows, costa just outside base, basal anal tuft, an indistinct but complete oblique band from basal one-third of costa to just before middle of anal margin (more evident on paratypes), a second band from middle of costa to anal angle which is continued outward at end of cell into a curving bar to costa just before apex, leaving a distinct, semicircular patch of ground color on outer third of costa; area between bands with two broad patches of shining rosaceous, a similar patch in costal semicircle and in lower area of ground color in terminal area; a pale rosaceous vertical bar just before apex from costa to middle of termen; fringe ochreous in upper half, paler in lower half. Underside pale, brownish in central area, costal area indistinctly mottled with ochreous-orange. *Hindwing*: shining whitish with a tinge of brownish through central area; fringe white, tinged with ochreous at apex. Underside white. *Abdomen*: shining whitish (apparently discolored on holotype). Genitalia as in fig. 4 (drawn from paratype, La Mesa, JAP slide No. 583, three slides examined).

Male.—Length of forewing about 7.3 mm. A single male with abdomen intact available for study and in very poor condition. Apparently marked essentially as described for female. Forewing with some dark scales through outer half of cell and central part of terminal area. Genitalia: nearly identical to that of *A. paiuteana* Powell (fig. 1); uncus apparently a little more slender and aedeagus slightly more curved (fig. 2, drawn from allotype, JAP slide No. 161).

Range of forewing length in paratypes, 8.3 to 9.0 mm. Forewings of paratypes more distinctly marked although all in worn condition. Those from San Diego with a little blackish scaling through the central portion of forewing in outer half, but none with the dark scaling bordering the ground color areas which emphasize the spots in *A. beyeria* Powell.

Holotype female, LOS ANGELES, LOS ANGELES COUNTY, CALIFORNIA, March 22, 1931, reared from Italian cypress [*Cupressus sempervirens*] June 9, 1931 (Burke) deposited in the California Academy of Sciences. Allotype male, "San Diego Co., Calif." VI-27-32 (no further data) deposited in the San Diego Natural History Museum. Four female paratypes, all California, as follows: Los Angeles County, Glendale, III-31-31, reared from *Cupressus macrocarpa* V-28-31 (Burke); San Diego County, San Diego, VI-3-33 (no collector given); La Mesa (Collier Park), light trap VI-25-26 (A. A. Lee); "Costal Area," VI-23-40 (F. T. Thorne) deposited in collections of California State Department of Agriculture, San Diego Natural History Museum, U.S. National Museum, and author. One additional male apparently referable to this species but not designated as a para-

type, San Diego, VI-27-24 [E. Piazza], having had a wing and genitalia slide made by Busck, "AB Mar. 24, 1929" which cannot be located, in Los Angeles County Museum. The latter specimen also bears a cotype label with an apparently unpublished Busck manuscript name.

Argyrotaenia beyeria Powell, new species

A brightly marked species, having the tan forewings banded and blotched with pink or rose colored markings which are emphasized by rust and black margins.

Male.—Length of forewing 8.8 mm. *Head*: palp orange exteriorly, sprinkled with brownish, paler interiorly; second segment moderately expanded toward apex; third segment brownish, nearly obscured by apical scales of second. Front margin at eye and antennal scape interiorly rust-red; remainder of head scaling dark to pale orange; pale yellowish below. *Thorax*: apparently uniform orange above (notum rubbed on holotype), tegula darker basally; metanotum unscaled with well developed white lateral hair tufts which are appressed over posterior half; white below except inner eye tuft and tegula base dark brown. Prothoracic leg dark brown below, femur, tibia and first tarsal segment tinged linearly with orange, tarsal segments pale apically; pale interiorly. Mesothoracic leg paler, similarly tinged with orange. Metathoracic leg whitish. *Forewing*: about 2.5 times longer than broad; costa evenly curved, flattened beyond middle, termen straight, not strongly angled inward. Ground color shining rosaceous tan marked (in general way) by three broad, variously developed transverse bands. Base dark rose, first band at basal one-fourth shining rose-pink, bordered narrowly outwardly and inwardly below cell by deep rust-red scales, those on lower fold nearly black; second band from costa before middle, angling outward and expanded outward abruptly in the cell by a black double crescent; above this bordered with rust-red; below this broadly bordered with dark rust and black, the latter most conspicuous at lower fold, the shining rosaceous area reduced to a round spot above and below the crescents; outer band incomplete, consisting of a half circle on costa and a sigmoid blotch tapering to a point at anal angle, both dark rust colored; the sigmoid spot margined outwardly and inwardly at middle with black. A triangular spot in apical area, dark rust bordered below with black which joins the sigmoid spot. Fringe pale shining orange. Underside dull brownish, the dark markings of the upper side reproduced as grey markings. Apical area yellowish between these. *Hindwing*: shining white above, whitish below with three faint grey spots around apex. *Abdomen*: whitish, genital tuft moderate. Genitalia essentially as in *A. paiuteana* Powell (fig. 1) from which it apparently differs by the apically tapered uncus and slightly more angulate aedeagus (fig. 3; drawn from paratype, Napa, JAP slide No. 562, three slides examined).

Female.—Length of forewing 9.0 mm. External features essentially as described for male. Legs paler, entirely whitish. Forewing marked as male except having less dark scales in the markings, which, therefore, although distinct are lighter (this may be due to the older condition of the allotype).

Hindwings, abdomen as in male. Genitalia as in *A. cupressae* (fig. 4) differing only by the more well developed lateral flanges of the signum (fig. 5, drawn from paratype, Rio Nido, JAP slide No. 604, two slides examined) and the less distinctly sclerotized neck of the ductus below ostium (as in *A. paiuteana*, fig. 6a.) The development and placement of the signum is variable within species throughout the genus, and it cannot always be used as a differentiating character within species groups. Apparently the outward projecting curved lateral flange always arises from the higher side on the bursa, and mirror image forms occur within a species.

Range of length of forewing in paratypes, males 8.0 to 9.2 mm.; females 9.1 to 9.9 mm. The series is more or less uniform in wing pattern, but exhibits considerable individual variation in development of color, especially the rust-red. Most of the paratypes have less dark reddish and black scales than the holotype, these being replaced by orange or yellow-orange scales. Some lack the black entirely and show very little rust-red so that the markings are less contrasting and at times obscure. The specimens from Petaluma, in particular, tend to have a paler, washed out appearance. A specimen from "Alameda Co." has more black than the holotype so that the rust-red is nearly all replaced by darker scales. The specimen from Santa Cruz County is the most distinctly marked, having the bands somewhat reduced and very well defined by narrow borders of deep rust-red. The shining rosaceous in the bands fades out, probably with the age of the individual when it is alive.

Holotype male and allotype female, BERKELEY, ALAMEDA COUNTY, CALIFORNIA, May 15, 1959 and June 26, 1959, at light (J. Powell), deposited in the collections of California Academy of Sciences. Twenty-four paratypes, all California, as follows: Lake County: Kelseyville, 1 ♂ no date given (Guedet). Sonoma County: Guerneville, 1 ♂ not date given (Guedet); Rio Nido, 1 ♂, 1 ♀ VII-3-27 (G. D. Hanna); Petaluma, 2 ♂ ♂ VI-16-36, 1 ♂ VIII-10-36, 1 ♀ VI-27-37, 3 ♂ ♂, 1 ♀ VIII-6 to 17-37, 1 ♀ VII-28-37, 1 ♂ VI-18-38 (E. C. Johnston). Napa County: Napa, 1 ♂ "Jun. 6," 1 ♂ VIII-4-30, 2 ♂ ♂ no date given (Guedet). Marin County: Mill Valley, 1 ♂ VI-8-24 (E. P. Van Duzee), 1 ♂ VI-15-58, light trap (H. B. Leech). Alameda County: 1 ♂ "Alameda Co. June" [Koebele]; U.C. Campus, Berkeley, 1 ♂ VI-23-59 (D. D. Linsdale). Santa Clara County: Stanford University, 1 ♀ VI-5-30 "resting on Italian Cypress" [Italian Cypress, *Cupressus sempervirens*] (collector not given). Santa Cruz County: Big Basin, 1 ♀

VII-4-59, at light (J. Powell). Deposited in collections of American Museum of Natural History, California Academy of Sciences, California Insect Survey, California State Department of Agriculture, Canadian National Collection, U.S. National Museum and author.

One additional male referable to this species but not designated as a paratype, "Alameda Co. June" having had a genitalia slide made by Busck "AB Mar. 20, 1929" which cannot be located, in Los Angeles County Museum. The latter specimen also bears a Busck Type label with an apparently unpublished manuscript name.

Argyrotaenia paiuteana Powell, new species

A shining, pale species, the forewings golden, marked with tan or pale red-brown.

Male.—Length of forewing 7.7 mm. *Head*: palp small, second segment shorter than vertical eye diameter, expanded apically above and slightly below into a somewhat truncate tuft which nearly obscures third segment; pale yellowish with a few scattered orange scales. Head tufts rather short and appressed, pale yellowish, whitish medially on vertex, a small bright orange patch adjoining eye below antennal scape; antennal scape pale except some orange scales anteriorly. *Thorax*: pale yellowish above with some scattered orange scales in collar, tegula apex and toward posterior tip; metanotum unscaled with lateral posterior flat tufts of long white hairs; underside white. Legs whitish, the prothoracic mottled with orange-brown exteriorly (according to paratype; holotype prothoracic legs broken below femora), tarsal apices white. *Forewing*: costa evenly and slightly rounded from base to apex; apex acute, termen angled rather steeply back; ground color pale yellowish or whitish with pale red-brown or orange indistinct banding as follows: basal one-fourth, within this area darker at base, outwardly on costa and with some dark red-brown scales along fold, especially on outer border of basal area; a broad oblique transverse band from middle of costa, expanding to meet anal margin from middle to anal angle; a second oblique band from outer fourth of costa to termen just above anal angle, interrupted by a line of ground color, forming a rounded costal spot, and including some dark scales in middle; anal apical area orange. Fringe white. Underside whitish with a faint brownish tinge over basal two-thirds and on veins in terminal area. *Hindwing*: shining white above and below including fringe. *Abdomen*: entirely whitish; genital tuft large. Genitalia as in fig. 1 (drawn from paratype, Clark County, Nevada, JAP slide No. 527, two slides examined), uncus broadest near apex (evident only when uncus is flattened). The scale-like cornuti, not shown for preceding two species are dehiscent and are often seen in the female bursa.

Female.—Length of forewing 9.0 mm. Essentially as described for male. Head uniform yellow-orange; forewing with some dark red-brown scales through the central part of all transverse markings, in the outer band, form-

ing a rounded spot which tapers toward anal angle, suggestive of the pattern in *A. beyeria*. Genitalia as in *A. cupressae* apparently differing only by the better development of the flanges of the signum and by the less distinctly sclerotized neck of the ductus below ostium (fig. 6a, b drawn from paratopotype, JAP slide No. 601, three slides examined), signum apparently somewhat less well developed than in *A. beyeria*.

Range of forewing length of paratypes, males 7.6 to 9.1 mm.; females 7.4 to 9.5 mm. The extent and distinctness of the markings is variable within the various individual spots, but all the paratypes have essentially the same pattern. The color of the markings tends to be paler than the holotype, often being a yellow-orange or deep tan.

Holotype male and allotype female, ROCK CREEK, ONE MILE WEST OF TOM'S PLACE, MONO COUNTY, CALIFORNIA, August 13, 1957, at light (J. Powell) deposited in the California Academy of Sciences. Fifteen paratypes as follows: California: 2 ♀♀ same data as holotype (the type series was collected VIII-10 to 13, one each night); 1 ♀ same locality, VIII-7-59 (C. D. MacNeill); 1 ♂ Lone Pine, Inyo County, V-26-37 (E. C. Van Dyke); Nevada: 1 ♀ Mina, Mineral County, VII-20-53 (R. H. Reid); 1 ♀ Wheeler Springs, Charleston Mts., Clark County, XI-(5-13)-34 (G. H. and J. L. Sperry); 4 ♂♂, 1 ♀ "Clark Co., June 24-30" (no further data); Utah: 1 ♂, 3 ♀♀ Eureka, Juab County, VI-28 to VIII-26-11 (Tom Spalding). Deposited in the collections of American Museum of Natural History, California Academy of Sciences, California Insect Survey, Los Angeles County Museum, U.S. National Museum and author.

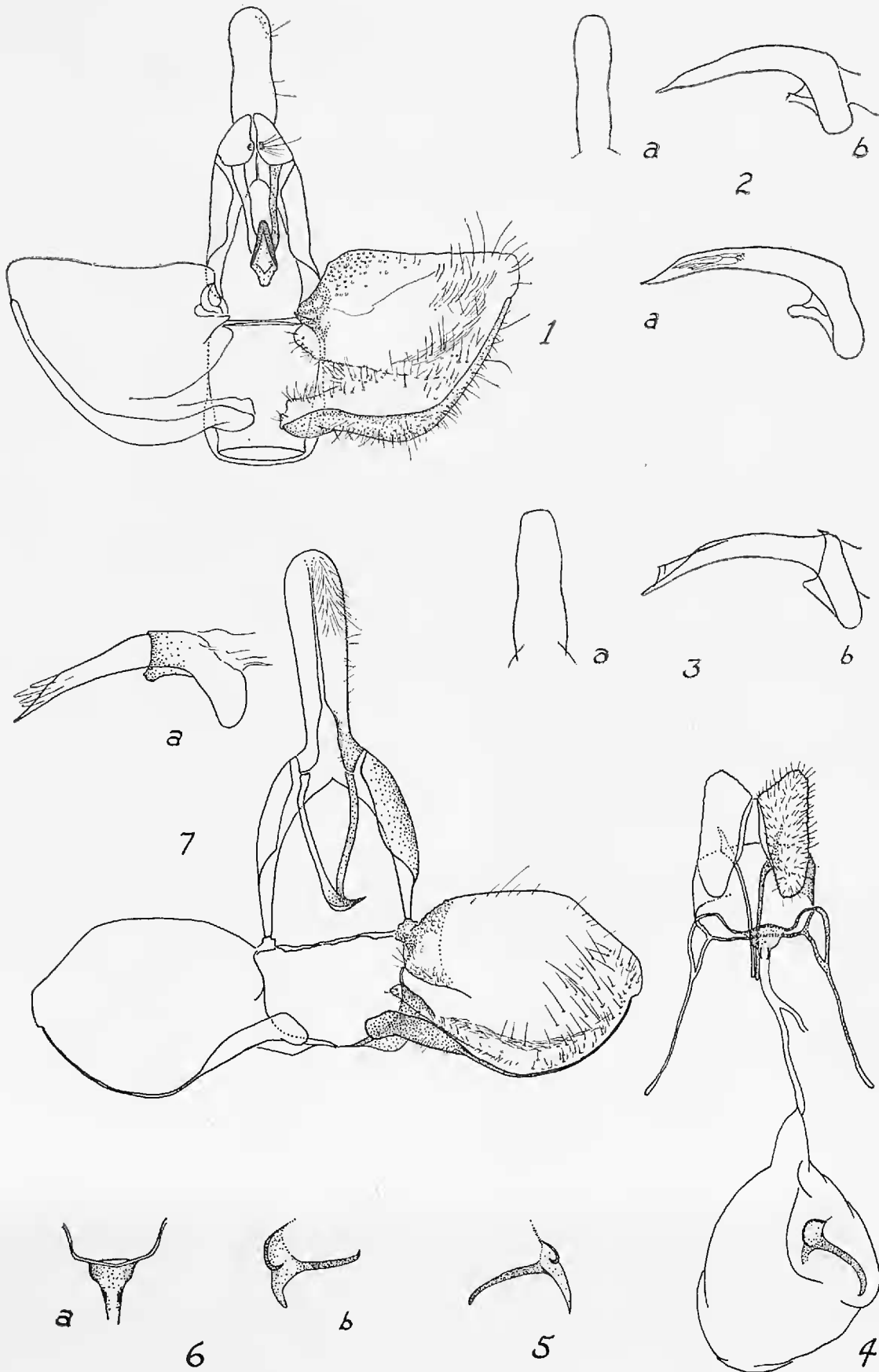
Two additional females appear to relate to this species but are not designated as paratypes, "Pinyon Flats," Riverside County, California V-26-52 (R. H. Reid) in the Los Angeles County Museum collection.

The species forms, together with *A. cupressae* and *A. beyeria*, a closely knit group unlike any other North American *Argyrotaenia* in external features. The similarity of the genitalia and

EXPLANATION OF FIGURES

Fig. 1. *Argyrotaenia paiuteana* Powell, male genitalia, a. aedeagus, lateral aspect; 2. *A. cupressae* Powell, a. uncus, inner aspect flattened, b. aedeagus, lateral; 3. *A. beyeria* Powell, a. uncus, b. aedeagus; 4. *A. cupressae*, female genitalia; 5. *A. beyeria*, signum; 6. *A. paiuteana*, a. ostium and neck of ductus, b. signum; 7. *A. burnorum* Powell, male genitalia, a. aedeagus, lateral.

the allopatric distribution suggest the possibility of a single wide-spread, geographically variable species. As Freeman (1958) has pointed out, the genitalia characters in many of the North



American *Argyrotaenia* are very similar, and specific differences are usually very subtle. The likelihood of their being subspecific relationships in several complexes of presently conceived species nonetheless exists. However, until a better understanding of the distribution patterns and biological characteristics is available, illustration of these is not possible. The lack of knowledge on the geographic range of the western forms in this group is particularly emphasized.

It seems probably that the *cupressae* group is most closely related to the *franciscana* (Walsingham) group according to the characters of the genitalia.

Argyrotaenia lautana Powell, new species

A large species with broad pale tan forewings marked only by a small outer costal spot of red-brown.

Male.—Length of forewing 9.4 mm. *Head*: palp rather compressed, not expanded greatly by scale tufting; second segment about equal to eye diameter; third segment mostly visible, porrect; tan; second segment basally and third segment sprinkled with brown exteriorly; pale interiorly. Head tufts prominent, dense, tan; antennal scape dark brown anteriorly and above, pale posteriorly and below. *Thorax*: pale tan above and below except metasternum white; prothoracic leg brown exteriorly, tarsal segments with white apical bands; mesothoracic leg paler, tarsal segments marked with pale brown (one mesothoracic leg lacking from holotype); metathoracic leg whitish; all legs pale interiorly. *Forewing*: broad, only about 2.4 times longer than wide, costa evenly rounded in basal half, flattened and slightly convex beyond; termen straight only slightly angled back. Color a uniform pale tan; costa margined narrowly and faintly with red-brown; a costal triangle from slightly before end of cell nearly to apex, extending only about one-fifth the width of wing towards anal margin, red-brown with some grey scales continued outward into a narrow costal tuft to apex; a dorsal mark faintly indicated by a few red-brown scales on margin just before anal angle. Fringe concolorous with wing. Underside pale tan, greyish centrally, apical costal tuft showing red-brown. *Hindwing*: whitish, fringe long, whitish, some yellowish scales at apex; underside the same. *Abdomen*: of holotype treated in caustic solution, of paratype entirely whitish, genital tuft long, conspicuous. Genitalia nearly identical to those of *A. dorsalana* (Dyar), (fig. 8, a, c, plesiotype, Modoc County, California, JAP slide No. 544) apparently differing by the more elongate, (in relation to size of tegumen) less tapered, parallel sided uncus (fig. 8b drawn from holotype, JAP slide No. 590, two slides examined) and by minor differences in greater development of sculpture on the anterior margin of the sacculus.

Female.—Length of forewing 11.4 mm. External features nearly exactly as described for male. Wing markings somewhat reduced, so that only obscure indications of the markings are evident. Abdomen whitish, dorsal and lateral genital tuft straight. Genitalia as in fig. 11 (drawn from allotype,

JAP slide No. 605, one slide examined); similar to *A. dorsalana* (Dyar), differing by having less distinctly formed lateral flanges of the signum and more pronounced scobination above the signum than in *dorsalana* (based on only one slide of each).

Length of forewing in paratypes 9.6–9.7 mm. As described for holotype except topotypic specimen has a second costal spot, near middle which forms with the better developed dorsal spot, a faint suggestion of a transverse band.

Holotype male and allotype female, CAMP BALDY, SAN BERNARDINO MOUNTAINS, SAN BERNARDINO COUNTY, CALIFORNIA “June 24–30” (no further data) deposited in the U.S. National Museum. Two male paratypes; one same data as holotype, “AB slide Feb. 10, 1929,” and one, Palomar Mountain, San Diego County, California VII-3-45 (Comstock and Martin) deposited in the U.S. National Museum and Los Angeles County Museum collections.

Two additional males, apparently referable to *lautana* but not designated as paratypes, Greenhorn Mts., Kern County, California VII-1-40 (C. Henne) more nearly resemble *A. dorsalana* in a pale straw ground color, and the markings suggest a relationship with that species. However, the large size (length of forewing 10.8 mm.) and markings are that of *lautana*. The mid costal spot extends indistinctly into the cell, forming a definite broken transverse band. The outer costal spot is extended downward by a subterminal line, outside of which there is some obscure brownish. In the less distinctly marked forms of *A. dorsalana* the costal spots are lacking, and the dorsal spot remains and is heavier in intermediate forms, whereas in the Greenhorn Mts. specimens this spot is less distinct than the costal spots, as in the other *lautana* specimens.

The nearly identical genitalia and similar wing pattern relate *A. lautana* most closely to *A. dorsalana* (Dyar), and *lautana* may prove to be a southern California mountain race when specimens become available from intervening areas. *A. dorsalana* is widespread in western North America from southern British Columbia to Arizona and New Mexico, but I have seen California specimens only from Modoc and Shasta Counties in the northeast corner of the state.

Argyrotaenia burnorum Powell, new species

A large species having the forewings brown, crossed by indistinct ochreous bands.

Male.—Length of forewing 10.5 mm. *Head*: palp ochreous mottled with brownish exteriorly, pale yellowish interiorly; tufts mixed with ochreous and brownish, vertex white; antenna brownish, annulated paler, scape whitish exteriorly. *Thorax*: collar ochreous, tegula and notum brown; metanotum unscaled except for pale flat apical tufts; underside shining whitish; a conspicuous flat tuft of broad white scales at base of fore coxae below head; pro- and mesothoracic legs brownish exteriorly, paler interiorly; metathoracic leg whitish, spurs darker, small tarsal spines conspicuously dark. *Forewing*: broad, costa evenly bowed before middle, straight beyond, apex broadly rounded, termen only slightly angled back. Brown, crossed by two broad indistinct and incompletely formed pale ochreous bands; base with some reddish-brown scales: first band at inner one-third, angling outward, apparently consisting at times of three parallel narrow bands (holotype somewhat rubbed); central area of wing generally over-scaled reddish-brown, outside inner band and outward through second band which begins at middle of costa and curves outward to anal angle, consisting in general of two parallel bands, especially below cell; apical area with an indistinct costal spot and two narrow vertical bands from costa to mid-termen, all pale ochreous; fringe brownish in upper half, becoming pale ochreous in lower half. Underside greyish-brown (showing a bluish sheen in certain lights), costa with about twelve dark spots or vertical dashes about evenly spaced along length; outer half of costa and apex pale; fringe ochreous tinged with brownish near apex. *Hindwing*: grey, paler basally, fringe whitish. Underside whitish with a few dark vertical strigulae around apex. *Abdomen*: greyish above, genital tuft, laterally and below pale ochreous. Genitalia as in fig. 7 (drawn from paratopotype, JAP slide No. 569, two slides examined).

Female.—Unknown.

Length of forewing range in paratypes 9.8–10.5 mm. The paratypes are somewhat rubbed specimens but show some variation in wing markings. The bands can consist, at least in part, of nearly solid patches of pale ochreous, the narrow bands fusing. The reddish-brown scales are sometimes replaced by yellow-orange, and the dark spots on the underside of the costa are not always evident.

Holotype male, MADERA CANYON, 5800', DAVIS MOUNTAINS, JEFF DAVIS COUNTY, TEXAS, April 30, 1959 (J. M. and S. N. Burns) deposited in the California Academy of Sciences. Three paratype males, same data except IV-28 to V-3-59 deposited in California Insect Survey, U.S. National Museum and author's collections.

In size, wing shape and genitalia *A. burnorum* is closely allied to *A. mariana* (Fernald), of the east coast, but the two are quite distinct in wing color and pattern.

I take pleasure in naming the species for Sara and John Burns,

who have collected many fine Microlepidoptera for me on their extensive trips throughout the southwest states in search of HesperIIDae.

Argyrotaenia graceana Powell, new species

A large, pale species with indistinct brownish or reddish-brown banding on the forewing.

Male.—Length of forewing 10.0 mm. *Head*: palp relatively small, second segment only about 1.5 times greatest eye diameter and third segment; expanded above by scaling on second segment apically into a gradually rounded shape, third segment thus about half obscured; second segment pale orange or whitish exteriorly mottled by brown scale tips, white interiorly, third segment brown. Head tufts dense, long, reaching to apices of scapes at vertex, white on crown, brownish at vertex, orange-brown below scapes, brown on front; antenna brownish, scape white below. *Thorax*: collar and tegula orange, the latter white apically; dorsum pale orange; metanotum unscaled with lateral posterior tufts only weakly developed, underside shining white. Legs whitish, pro- and mesothoracic tibiae and tarsi brownish exteriorly except apical bands. *Forewing*: costa nearly straight, only slightly curved in basal half, giving the wing a narrow appearance; termen angled back only slightly but anal angle broadly rounded. Ground color pale grey, blending to whitish apically, costa whitish; marked with dull orange-brown very indistinctly as follows: a broad basal area except costa, a broad oblique band from middle of costa to inside anal angle in large part interrupted by ground color, a very faint second band from outer fourth of costa toward anal angle consisting of a rather distinct costal spot and indication of a vertical portion in pale apical area, not reaching anal angle, suggestion of a narrow terminal band. Fringe grey. Underside pale, central area greyish, margins whitish. *Hindwing*: uniform pale grey; fringe long, white with a narrow basal band of pale brownish scales. *Abdomen*: whitish above, brownish on apical segments (discolored on holotype); pale below; genital tuft conspicuous, whitish. Genitalia as in fig. 10 (drawn from paratopotype, JAP slide No. 566, three slides examined). Uncus and upper part of tegumen very heavily sclerotized and forming a hood-like structure, which cannot be flattened back apically to give comparable view to the other *Argyrotaenia* drawings.

No females available from the type locality, but a single example from the same mountain range appears, on the basis of size and coloration, to represent this species.

Female.—Length of forewing 9.2 mm. In general as described for male except the brownish coloration replaced by orange-brown or pale rust colored scales. *Forewing*: whole basal half, except costa, somewhat covered with orange scales, pale band outside median band remaining distinct; outer orange band and terminal band more distinct and broader than in male, nearly filling the apical area with color. Fringe orange-brown, darker toward apex. Genitalia as in fig. 9 (drawn from allotype, JAP slide No. 587, one slide examined), bursa scobinate over entire surface.

Range of forewing length of paratypes, 8.4–10.4 mm. The

wing markings are somewhat variable both in distinctness and color, ranging to a form with rather complete and distinct bands as described for holotype and to a rust-brown although not so bright an orange as that of the single female.

Holotype male, HATHAWAY CREEK, SAN BERNARDINO MOUNTAINS, RIVERSIDE COUNTY, CALIFORNIA, August 2, 1940 (C. Henne). Allotype female, Lake Arrowhead, San Bernardino Mountains, San Bernardino County, California, August 29, 1940 (H. Buckwalter) both deposited in the U.S. National Museum. Six male paratypes, all California, as follows: four, same data as holotype, one, same data except J. A. Comstock, one Upper Santa Ana River, San Bernardino Mts., VIII-1-46 (Grace H. and John L. Sperry) deposited in collections of American Museum of Natural History, California Academy of Sciences, U.S. National Museum and author.

A. graceana is a manuscript name of Dr. N. S. Obraztsov who kindly turned over his specimen for use in the present description. The species is named for Grace H. Sperry who helped to contribute to the knowledge of this and many other species of Tortricidae through the years of diligent collecting with her husband.

The species is very distinct both in external features and in genital characters of both sexes from any of the described *Argyrotaenia* species.

Besides the above material, I have studied ten additional females from the White Mountains, Arizona, collected on various dates in 1925 by O. C. Poling which appear to represent *A. graceana*. However, without having a male available for study from the area I hesitate to definitely refer these to the southern California species.

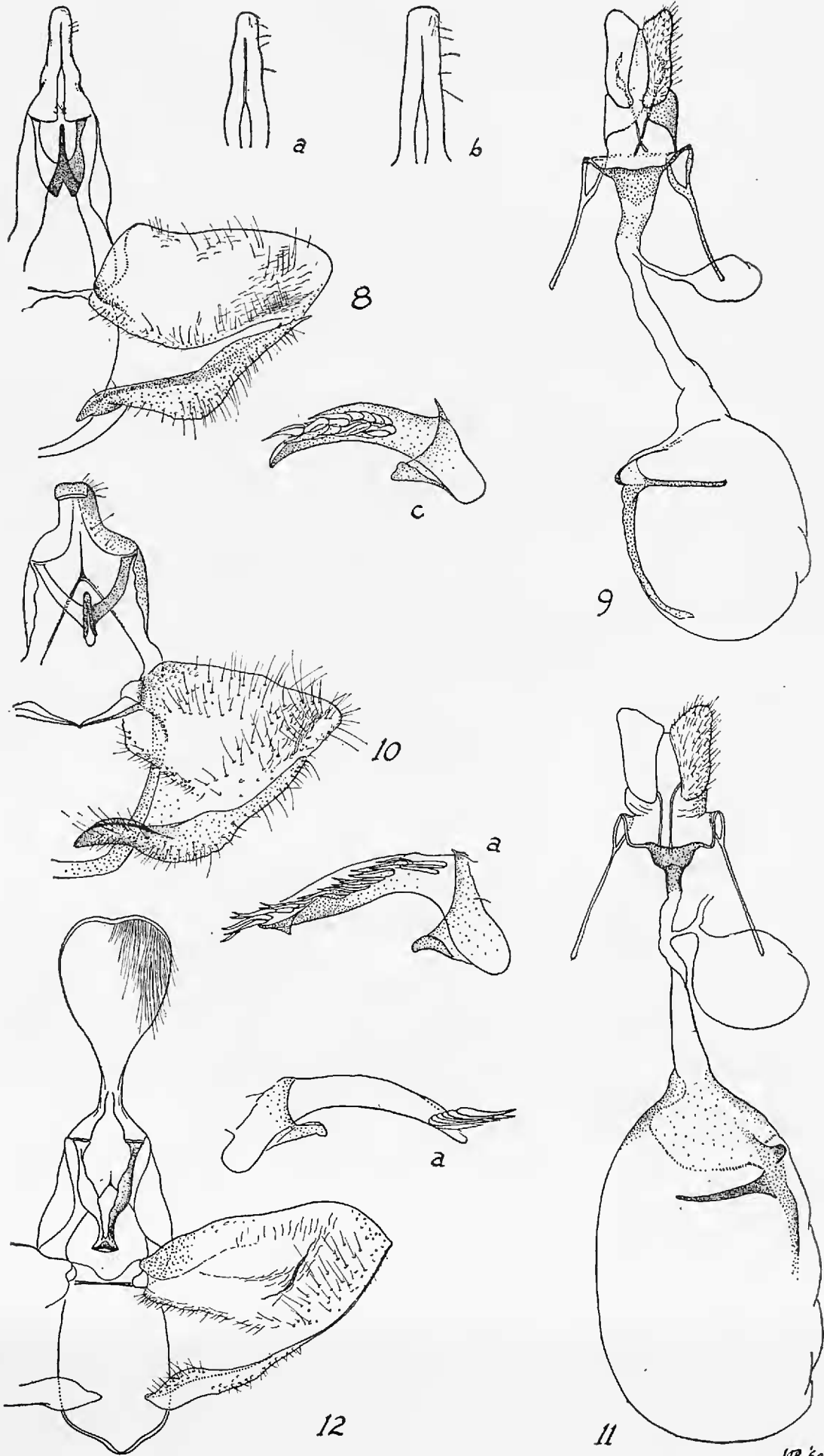
Argyrotaenia martini Powell, new species

A shining golden species having the forewings marked with broad, ochreous-brown spots and bands.

Male.—Length of forewing 9.8 mm. *Head*: scaling pale ochreous;

EXPLANATION OF FIGURES

Fig. 8. *Argyrotaenia dorsalana* (Dyar), male genitalia, *a.* uncus, inner aspect flattened, *b.* *A. lautana* Powell, uncus, inner aspect flattened, *c.* *A. dorsalana*, aedeagus, lateral aspect; 9. *A. graceana* Powell, female genitalia; 10. *A. graceana*, male genitalia, *a.* aedeagus, lateral; 11. *A. lautana*, female genitalia; 12. *A. martini* Powell, male genitalia, *a.* aedeagus, lateral.



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labial palpus second segment broadly expanded above and below to the truncate appearing apex, with a few orange-brown scales exteriorly; third segment not obscured by scaling of second, smooth scaled. Antenna brownish, each segment annulate with pale scales and marked by a brown spot above; scape brownish above. *Thorax*: collar pale ochreous; tegula orange-brown, pale at apex; orange-brown continued as a band across dorsum of thorax which is otherwise paler (discolored on holotype). Legs pale ochreous, prothoracic tibia and tarsus marked with brown exteriorly. *Forewing*: about 2.6 times longer than broad; costa curved abruptly at base, nearly straight beyond basal one-third, termen only slightly angled back, the wing thus rather rectangular in appearance. Ground color very pale ochreous, shining, the markings somewhat diffuse, not well defined, scattered orange or brownish scales occurring between the markings in most areas; basal one-third with an orange-brown patch, indistinct in costal half, outwardly angulate at middle; a broad, transverse, ochreous-brown band from middle of costa to before anal angle, widened on margin to angle, broken along upper edge of cell by ground color; a large, semicircular, brown spot at outer one-fourth of costa; a subsquare, ochreous-brown spot of about equal size slightly outside and below costal semicircle, its lower corner nearly reaching termen, the two being the most distinct markings of the wing; a narrow band of small, joined, brownish spots along termen and around anal angle to basal patch. Fringe shining pale ochreous. Underside, greyish in central portion and to costa at costal markings of upperside, reflecting purplish; terminal, apical and outer costal areas pale ochreous. *Hindwing*: shining whitish, lightly infuscated in anal half. Underside whitish, apex ochreous. *Abdomen*: of holotype treated in caustic solution and placed on slide; paratype whitish with some brownish scaling at base of genital tuft. Genitalia as in fig. 12 (drawn from holotype, JAP slide No. 514, one slide examined); uncus very broadly expanded, spatulate, *socii* lacking.

Female.—Unknown.

Length of forewing of paratype, 9.9 mm. Varying from the holotype only by a greater infusion of orange-brown scales into the markings, especially along the costa; hindwings with the anal area more heavily infuscated, the apical area marked with some faint, ochreous strigulae; uncus with a deeper apical emargination.

Holotype male, PINE CREST, MT. GRAHAM, PINALENO MOUNTAINS, GRAHAM COUNTY, ARIZONA, 7300', June 28, 1955 (Lloyd M. Martin) deposited in the Los Angeles County Museum. One male paratype, Pinery Canyon, Chiricahua Mts., Cochise County, Arizona, June 27, 1955 (L. M. Martin) in author's collection.

Superficially the species appears somewhat like *A. paiuteana* Powell. However, the two are easily distinguished, and the

extremely aberrant genitalia form places *A. martini* remote from any of the known nearctic species. I suspect that its nearest relatives occur to the south, the types representing a northern cordilleran extension of a species with tropical affinities.

I take pleasure in naming the species for Lloyd M. Martin, veteran collector of the Arizona Lepidoptera fauna, who has been most cooperative in making material available from the Los Angeles County Museum collections.

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A NEW SPECIES OF DIANDRENA ASSOCIATED WITH OENOTHERA IN CALIFORNIA

(Hymenoptera: Andrenidae)

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The following new species of *Andrena* (*Diandrena*) collects pollen in the morning from *Oenothera dentata* at various sites in the southern San Joaquin Valley, California. It is named in honor of my colleague, John W. MacSwain, with whom I have collected it on several occasions.

Andrena (*Diandrena*) *macswaini* Linsley, new species

Female.—Integument dull greyish blue, abdomen with slight greenish reflections, antennae and legs dark brownish-black, clypeus black, the base and sides of face green with violet reflections; pubescence pale, white on clypeus, black or dark brown near eyes, antennae, and vertex, anal fimbria brown, tibial scopa intermixed with brown, abdominal hair bands pale, distinct, complete. *Head* tessellate, moderately densely punctate; frons finely, longitudinally striate; clypeus without a median impunctate line; labrum with apical process deeply incised and bilobed, the lobes elevated, polished, separated, and slightly divergent. *Mesosoma* with mesoscutum dull, tessellate, the superimposed punctures moderately large, crater-like, mostly separated by their own diameters, pubescence uneven in length, moderately dense, pale; propodeum feebly shining, tessellate and finely rugulose, enclosure finely, irregularly rugulose, the rugulae only a little less fine than those of adjacent areas; wings very lightly tinted with brownish; posterior trochanters with a long, curved white floccus, tibial scopa long, loose, simple beneath, denser dorsally, the hairs mostly shorter than width of tibia and denser, darker, and somewhat plumose toward the femur. *Metasoma* dull, tessellate, first tergite with numerous, large, irregular punctures with the anterior margin elevated